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Bhavnagarwala et al.
YOR920030289US1 (TAD) (8728-635)

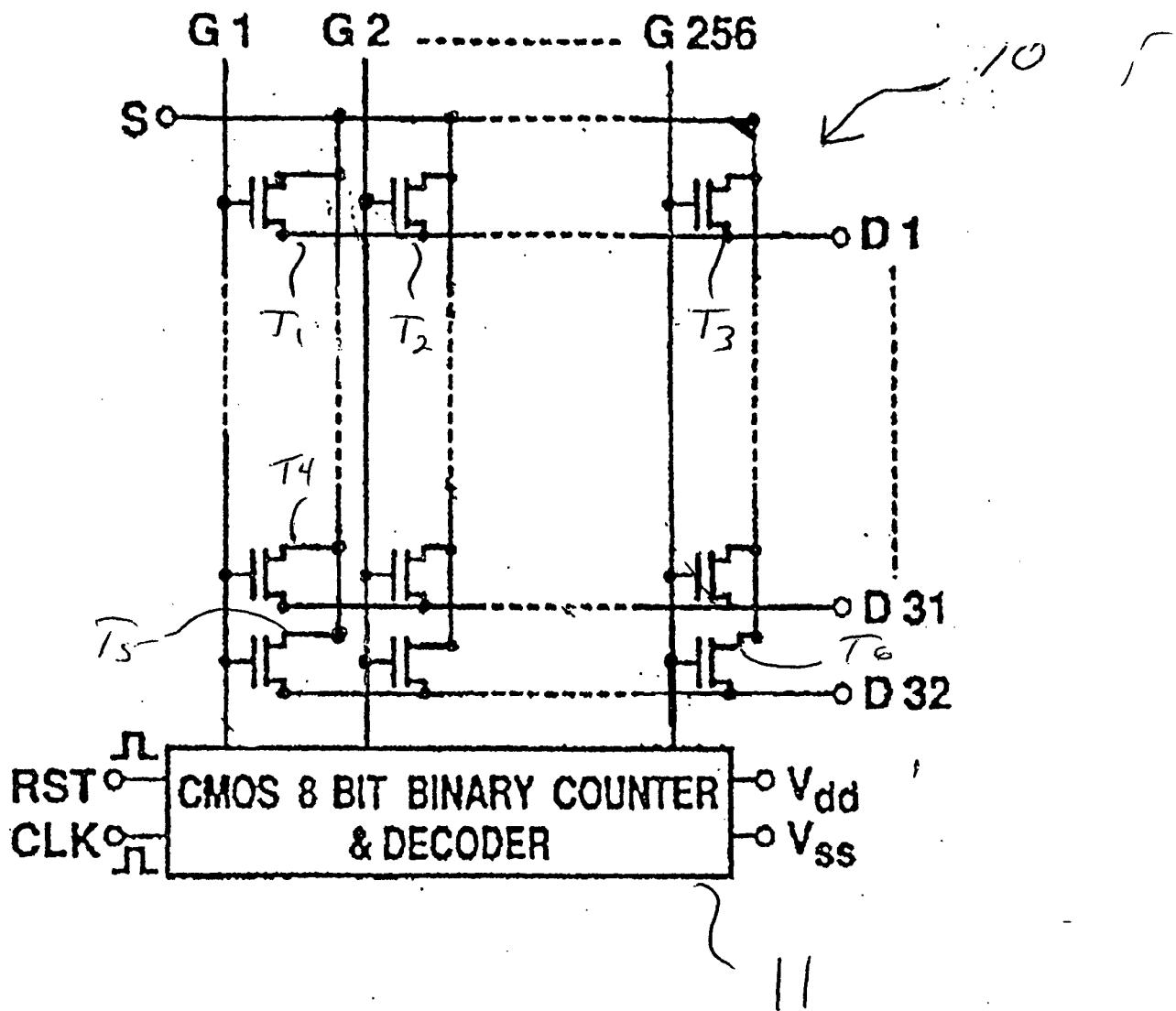


Fig. 1

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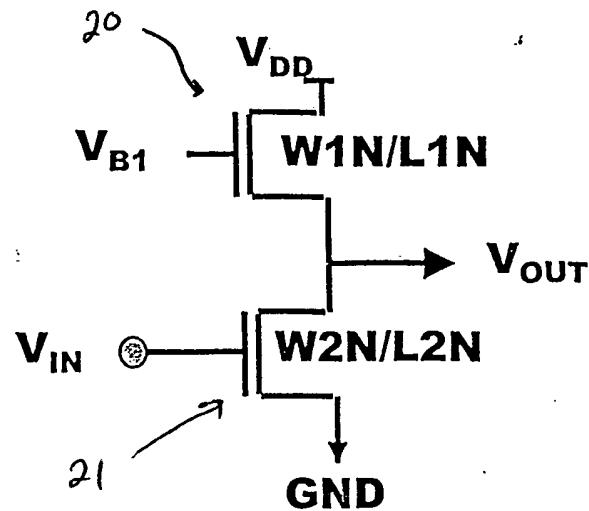


Fig 2

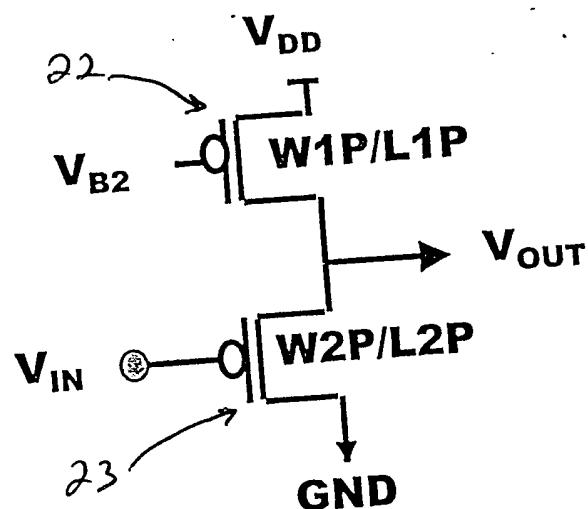


Fig 3

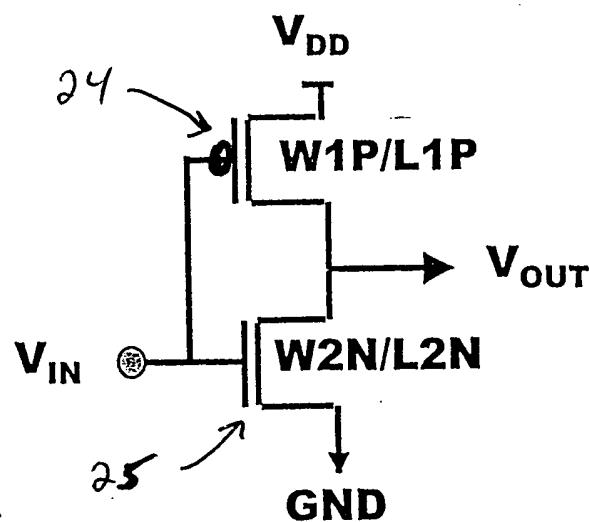


Fig 4

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$$\begin{aligned}
 V_{in} &= V_{dd} - V_{out} + (V_{TN2} - V_{TN1}) + \\
 &\quad \left[\frac{\eta}{\beta} \ln \left| \frac{k_{N1}}{k_{N2}} \right| + \frac{\eta}{\beta} \ln \left| \frac{1 - e^{-\beta(V_{dd} - V_{out})}}{1 - e^{-\beta(V_{out})}} \right| \right] \\
 k_{N1} &= \frac{W_{N1}}{L_{N1}} \mu_{on} C_{ox} \frac{\eta}{\beta^2} \quad k_{N2} = \frac{W_{N2}}{L_{N2}} \mu_{on} C_{ox} \frac{\eta}{\beta^2}
 \end{aligned}$$

(a)

(b)

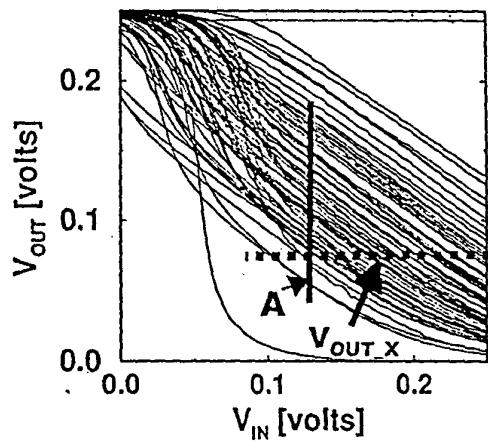


Fig. 5

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II

$$V_{in} = V_{out} - (V_{TP2} - V_{TP1}) -$$

$$\frac{\eta}{\beta} \ln \left| \frac{k_{P1}}{k_{P2}} \right| - \frac{\eta}{\beta} \ln \left| \frac{1 - e^{-\beta(V_{dd} - V_{out})}}{1 - e^{-\beta V_{out}}} \right|$$

$$k_{P1} = \frac{W_{P1}}{L_{P1}} \mu_{op} C_{ox} \frac{\eta}{\beta^2} \quad k_{P2} = \frac{W_{P2}}{L_{P2}} \mu_{op} C_{ox} \frac{\eta}{\beta^2}$$

Fig. 6

III

$$V_{in} = \frac{V_{dd}}{2} - \frac{V_{tN1} - |V_{tP1}|}{2} +$$

$$\frac{\eta}{2\beta} \ln \left| \frac{k_{P1}}{k_{N1}} \right| + \frac{\eta}{2\beta} \ln \left| \frac{1 - e^{-\beta(V_{dd} - V_{out})}}{1 - e^{-\beta V_{out}}} \right|$$

$$k_{P1} = \frac{W_{P1}}{L_{P1}} \mu_{op} C_{ox} \frac{\eta}{\beta^2} \quad k_{N1} = \frac{W_{N1}}{L_{N1}} \mu_{on} C_{ox} \frac{\eta}{\beta^2}$$

Fig 7(a)

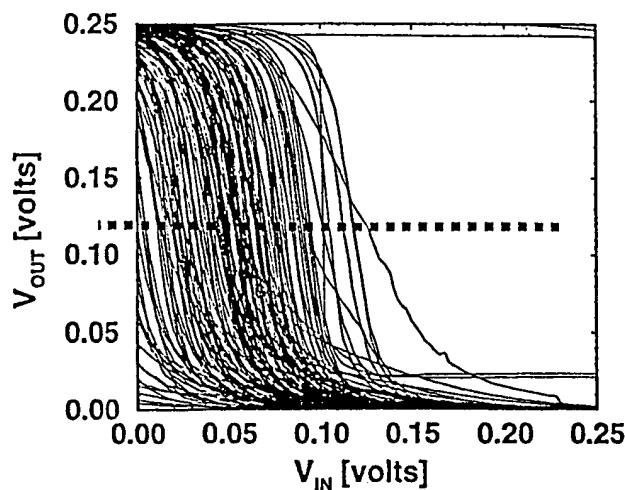


Fig. 7(b)

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 y0r920030289451 (8728-635)

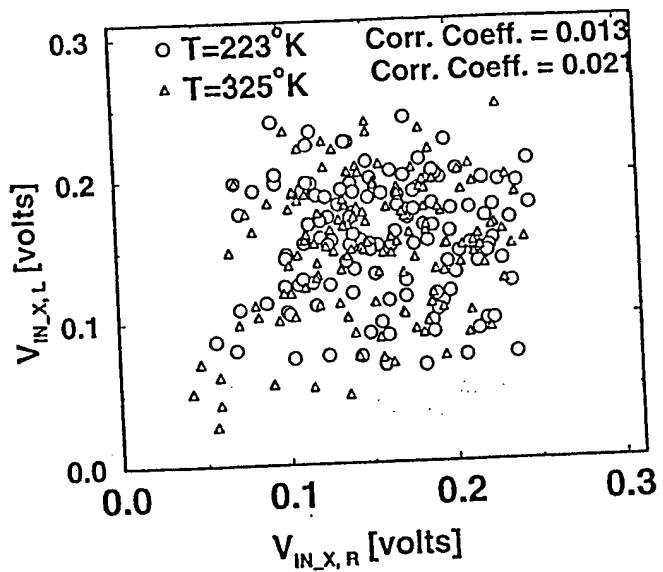


Fig. 8

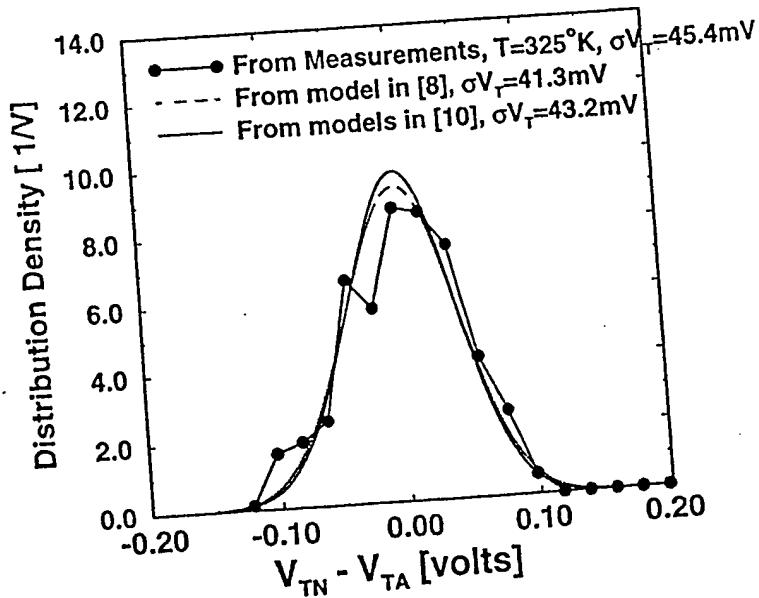


Fig. 9

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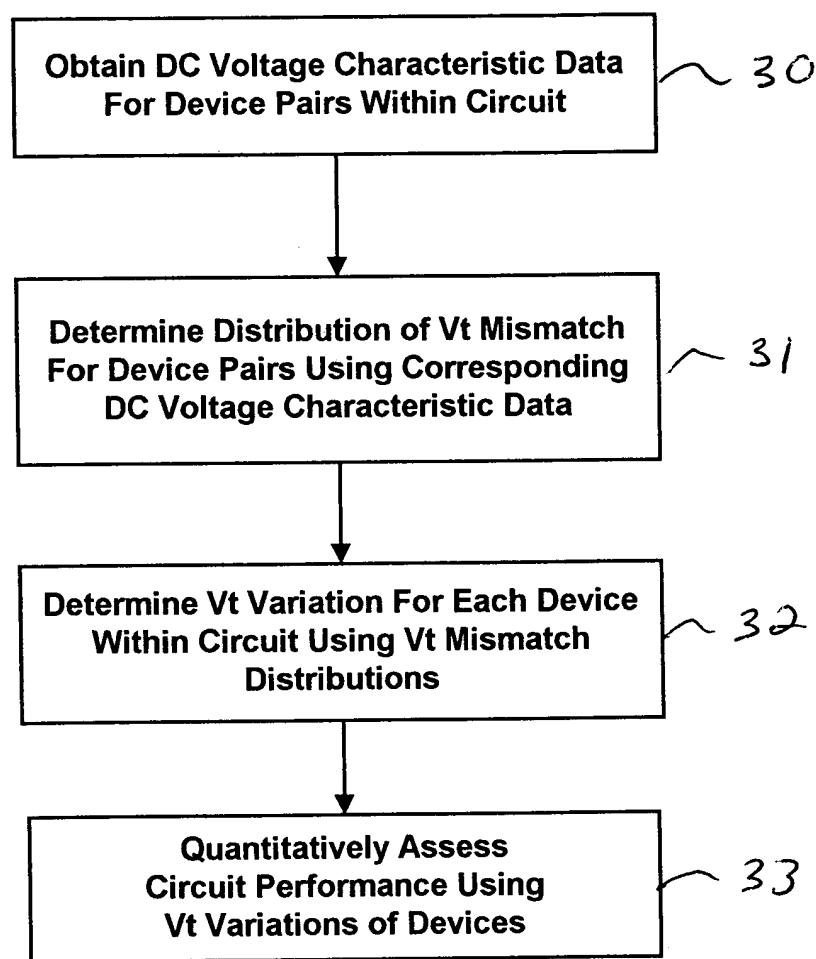


Fig. 10

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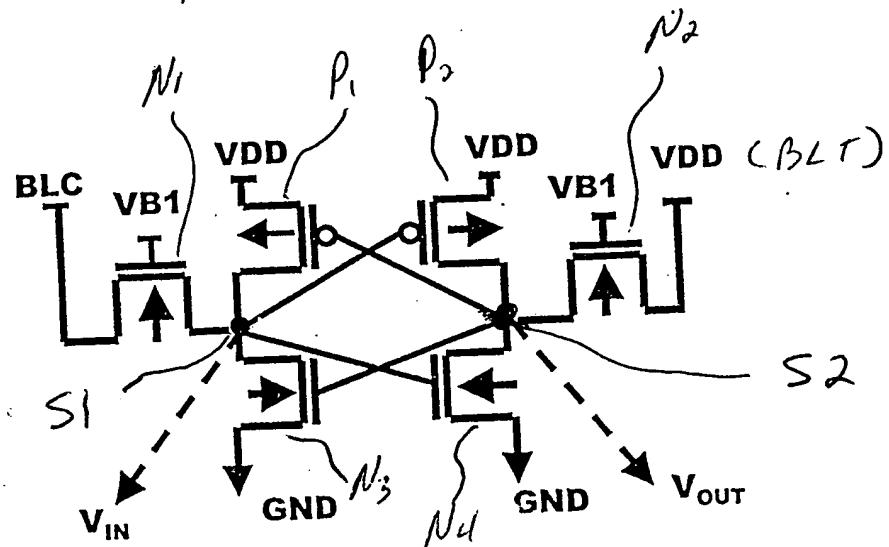


Fig. 11

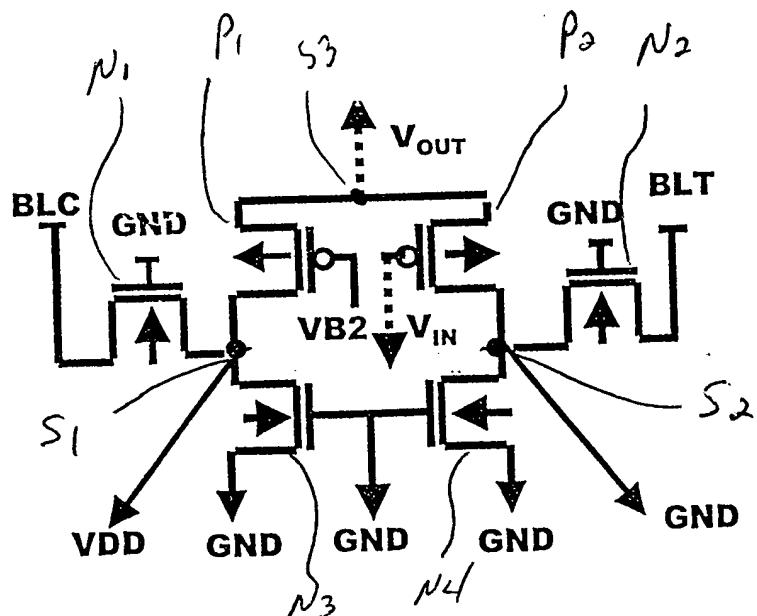


Fig. 12

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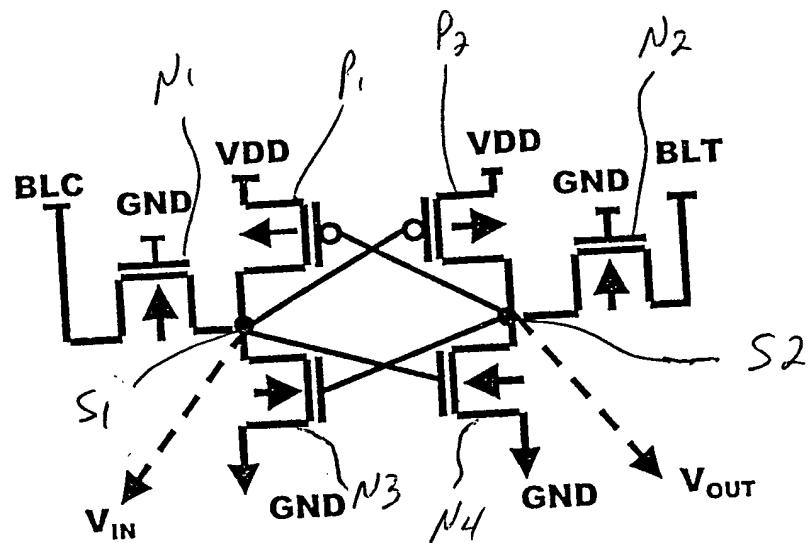


Fig. 13

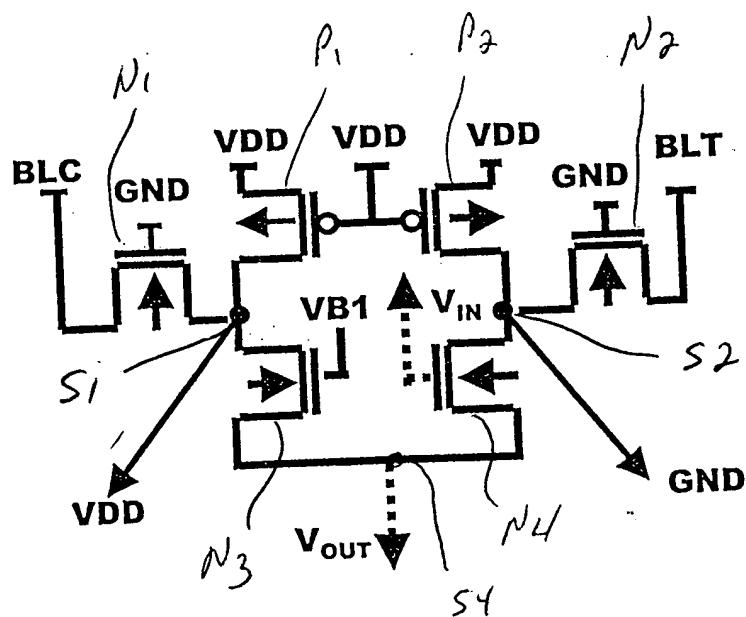


Fig. 14

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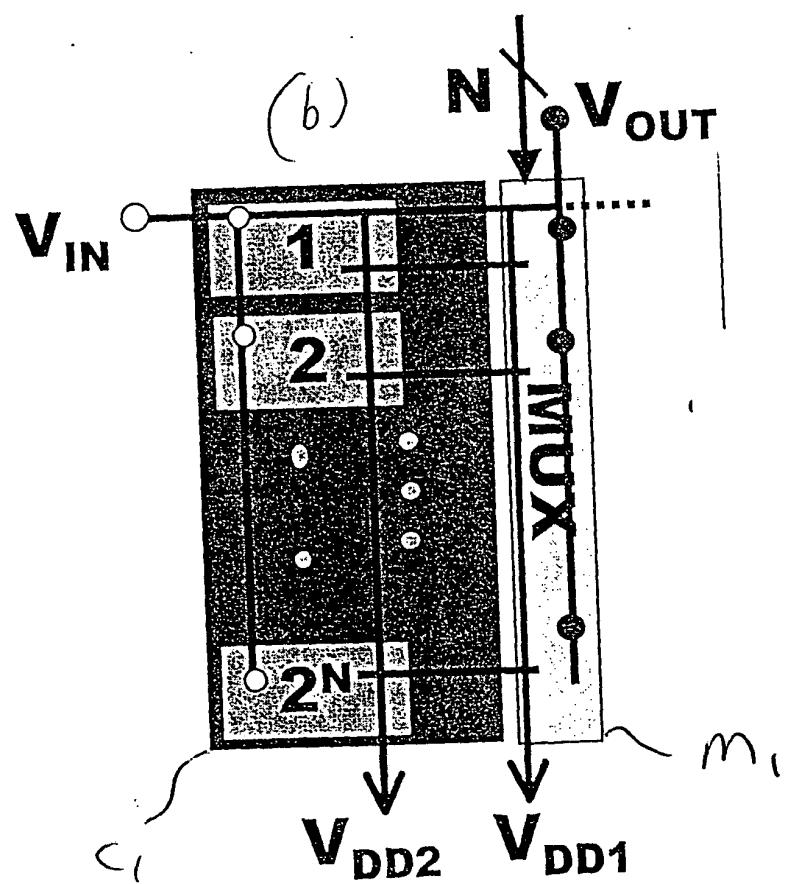
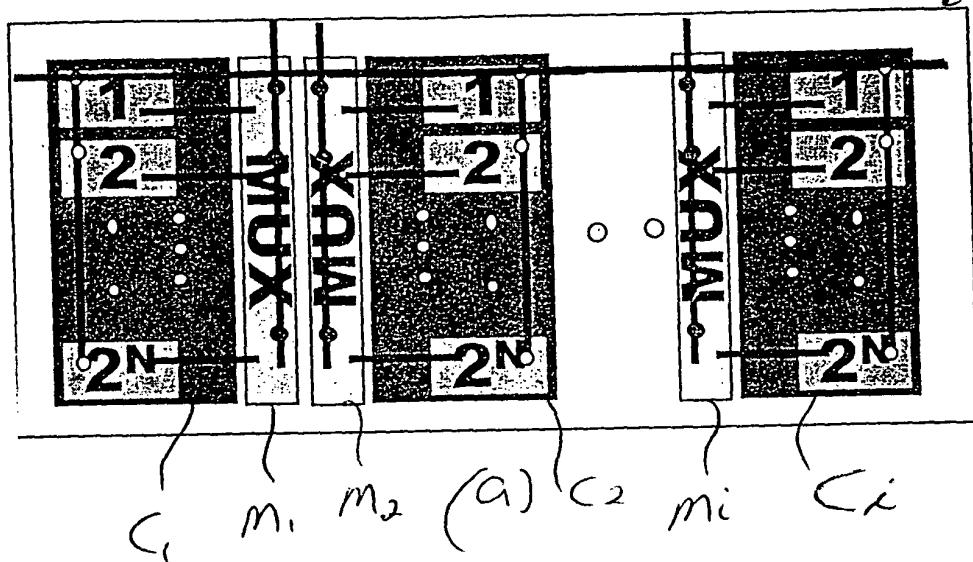


Fig 15